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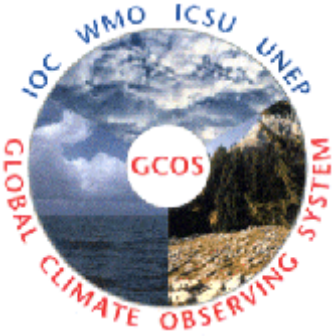
FY 2003 President's Request

Climate Observations and Services: Climate Change Research Initiative Overview



NOAA's efforts with GCOS will help ensure that the observations needed to address climate-related issues are obtained and made available to all potential users.

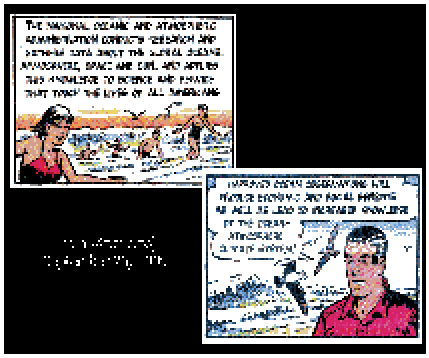
What is requested?

NOAA requests an increase of $18,000,000 and 2 FTE in the Climate Observations and Services line item to work towards the goals of the Climate Change Research Initiative (CCRI). By announcing the establishment of the CCRI in June 2001, President Bush addressed the administration's commitments to study areas of scientific uncertainty in climate change and address priority areas where investments can make a difference in reducing this uncertainty.

Why do we need it?

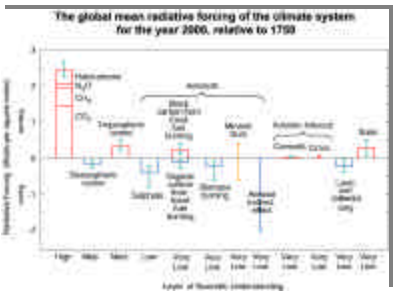
The potential economic impact of actions to mitigate human-induced climate change could be large. Ongoing international negotiations must be based on the very best science and the most up-to-date decision tools. The National Academy of Sciences identified fundamental areas of scientific uncertainty, and this request is specifically targeted for these areas. The increase will provide a broad-scale look at the climate system, help us determine the uncertainties in predicting system behavior, and reveal the regional impacts of climate change.

What will we do?

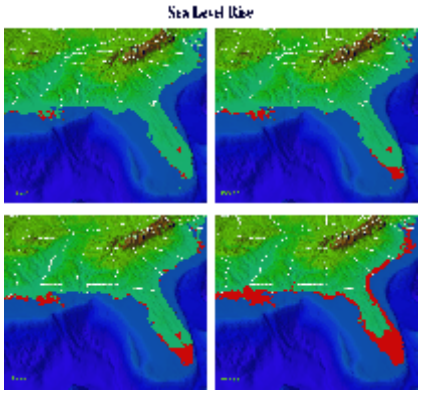


Ocean observation research featured in the popular Mark Trail cartoon strip in 2000

This request will support improvement of our predictive and observational capabilities in several key areas. NOAA will establish a **Climate Modeling Center** within the Geophysical Fluid Dynamics Laboratory to provide a suite of climate products for decision support by policy makers. NOAA will support enhancement of a **benchmark upper-air network**, with cooperation from other developed nations, emphasizing areas in developing countries where these climate observations are incomplete. NOAA will work towards the establishment of an **ocean observing system** that can accurately document climate-scale changes in ocean heat, carbon, and sea level. To do this, NOAA will enhance the arrays of drifting floats at the surface, profiling instruments at depth, and moored arrays for temperature, salinity, and currents. NOAA will also establish ocean station time series at key locations to monitor physical and chemical sea-water properties and meteorology. NOAA will expand its participation in the interagency **National Aerosol-Climate Interactions Program** currently under development. Specifically, NOAA will establish new and augment existing in-situ monitoring sites, including aircraft sampling, in and down wind of major pollution areas (e.g., Asia, Eastern North America, and South America).



Aerosols contribute to some of the largest uncertainties in understanding climate change.



With more people moving to coastal regions, sea-level rise is becoming an important concern. (Figures show effects in red of sea-level rise of one, two, four, and eight meters, respectively.)

NOAA also will develop integrated chemistry and climate models to predict the effects of ozone and fine particles. Field campaigns will be necessary to augment the carbon monitoring capabilities in North America. As such, NOAA will develop an integrated **North American Carbon Study**, which will be an intensive focus on North American land and adjacent ocean carbon sources and sinks. The work will improve monitoring and documenting carbon storage and determining the key processes regulating carbon fluxes between the land and ocean. Finally, working with NSF, NOAA will augment its research capability in **Regional Integrated Science Assessments** by using research on decision making in the face of uncertainties. This effort will provide these regional projects with the ability to look across regions to consider national priorities in water management, disaster management, fire management, health, and agriculture.

What are the benefits?

With some of the specific benefits outlined above, more generally, NOAA will be in a position to reduce uncertainties in climate change projections with major advances in understanding and modeling of greenhouse gases and aerosols; to ensure the existence of a long-term observing system that provides a more definitive observational foundation to evaluate decadal-to-centennial scale changes; to enhance research by coupling physical, chemical, biological, and human systems; and to improve the effectiveness of decision support systems and analysis of the response of human and natural systems to multiple stresses. Simply put, it will provide us with a suite of decision tools to better address the issue of climate change.

For more information:

NOAA Research External Affairs Team
301.713.1671

NOAA Budget	FY2003 Change $ millions
Climate Research	
Climate Observations and Services	
Climate Change Research Initiative	$18